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ADOLESCENT VICTIMS OF VIOLENCE IN A WELFARE STATE

Sociodemography, Ethnicity and Risk Behaviours

WILLY PEDERSEN*

In a normal population sample of Norwegian adolescents, 6 per cent reported to have been victims of violent victimization during the last year. The sample consisted of three cohorts of adolescents from Oslo, aged 13–18, who had filled out a survey at school. Further, we had at our disposal community-level indicators of welfare in the home city districts of the adolescents. Boys were more often victimized than girls. Individual level demographic indicators (immigrant, working-class background, parents unemployed or on social welfare), were associated with victimization risk. However, the impact of community-level sociodemographic variables (education, income, single parenthood, death rates) were of greater magnitude. Further, there were effects from general lifestyle (unorganized leisure, evenings in town), but risk behaviours were more important. In particular alcohol problems, own aggression and carrying a weapon were associated with high risk for victimization. There were small differences in predictors between genders, but adolescents with immigrant background were less vulnerable for contextual level factors than adolescents without such a background. The findings are discussed in relation to other recent findings and theoretical developments as regards research on violent victimization.

Victims of Violence in a Welfare State: The Importance of Demography, Ethnicity and Risk Behaviours

Violence and violent victimization are among our most important social problems. In Norway, these problems have dominated public debate during the last couple of years. Who are the victims of violence? Researchers have consistently found that some individuals run a higher risk of victimization than others, and a host of *demographic* variables have been reported to be related to victimization risk. Among these are youthfulness and male gender; unmarried and low-income individuals have also been reported to be at high risk (Kennedy *et al.* 1991; Miethe and Meier 1994).

Early ecological studies also identified structural characteristics of communities which were associated with high rates of violence—in particular low economic status and residential mobility (for a review, see Short 1997). Recent studies have presented additional evidence to this picture. Sampson and Lauritsen (1990) found that ecological proximity to crime areas significantly predicted individual violent victimization. Sampson (1987) reported that a higher percentage of single-adult households and raised residential mobility significantly increased violent victimization, while a higher degree of urbanization increased theft victimization. In a recent study, Sampson *et al.* (1997) reported that concentrated disadvantage and residential instability was

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associated with violence, and that the mediating mechanism seemed to be lack of social cohesion and little willingness among the inhabitants to intervene on behalf of the common good. Thus, all evidence indicates that sociodemographic factors play an important role as regards violent victimization. However, most studies have either relied on survey-based information from individuals, to measure such community characteristics, or compared aggregated victimization rates in communities with different socio-economic characteristics. Jones-Webb *et al.* (1997) argued that area-level measures of socio-economic status have several advantages: First, such measures may better capture contextual risk and protective factors. Second, a focus on neighbourhoods permits testing the hypothesis that group effects matter. Third, when area-level measures from an exogenous data source are used, the possibility of correlated measurement error across levels of analysis is minimized. A few recent studies have, however, used independently collected secondary data for more precise descriptions of context-level community characteristics, in combination with individual level data (Sampson *et al.* 1997; Fisher *et al.* 1998). Such strategies seem fruitful, as little is known about the relative effect of individual and community-level characteristics. What is most important—your own living conditions, or the general welfare level in the area where you live? One should also note that most studies have been conducted in the US, and there is a striking lack of European studies on this topic.

During the last couple of decades, it has become clear that certain lifestyles are also associated with victimization risk. More than 30 years ago, Wolfgang and Ferracuti (1967) formulated the theory of *violent subcultures*. Their proposition was that, in certain groups at the outskirts of society, there were subcultural value systems which gave acceptance and legitimacy to violence. Persons in these systems would often alternate between roles as victim and offender. The victims would sooner or later become offenders, as retribution for harm done to them. The offenders would become victims, because they followed values supportive of violence for solving disagreements.

However, the theory of violent subcultures focused on supposedly small and marginal groups. Hindelang *et al.* (1978) and Cohen *et al.* (1981) introduced *routine activity* and *lifestyle theories*, which were hypothesized to have a higher level of generalization. The essential proposition was that the convergence in space and time of suitable targets and potential offenders, combined with the absence of capable guardians, would lead to an increase in victimization. According to the theory, this would happen independently of the demographic, structural and cultural conditions that generally motivate individuals to engage in crime. Thus, the focus of these studies became time spent in public places, interaction with potential offenders, and other characteristics related to the convenience and desirability of people as targets. Miethe and Meier (1990), for example, reported that a composite of night activity, including the number of nights spent outside the home in leisure and social activities and the number of nights spent walking alone outside the home, significantly predicted theft and personal assault. The importance of *guardianship* has routinely been included in the lifestyle research. Guardianship has included indicators of integration and of significant others' ability to prevent crime—measured as attachment to parents and friends, amount of social integration and informal social control in a neighbourhood. The results from previous research are, however, not very convincing as regards the deterrent effect of guardianship. Several studies have reported lower victimization rates in situations with high guardianship, but others have not found such associations (for a review, see Rosenbaum 1987).

Jensen and Brownfield (1986), in a critical discussion of the lifestyle paradigm, noted that (i) the contribution of the lifestyle variables was rarely directly assessed, and that (ii) an artificial dichotomy was created between victims and offenders. Instead, the authors suggested that 'criminal or delinquent routines are the most victimogenic of all routines' (p. 87). Their empirical findings supported this suggestion: delinquent activities were found to be more strongly related to victimization than other activities. In line with this, Sampson and Lauritsen (1990) found that violent offending and deviant lifestyles were associated with victimization risk, while Lauritsen *et al.* (1992) found that a summary measure of delinquency involvement (assault, theft, robbery) was associated with victimization risk. Further, in both these studies there were associations with the use of alcohol. Windle (1994) reported that the use of alcohol, marijuana and other illegal drugs was associated with victimization risk, but that other risk behaviours ('hitch-hiking', 'selling items door to door alone', 'going to places that are dangerous') were even stronger predictors.

Thus, all evidence indicates that participation in a deviant and lawbreaking lifestyle enhances the possibility of violent victimization. However, the details of these relationships are not very well investigated. Most studies have used crude summary indices of delinquency, rather that more fine-meshed dimensional approaches (e.g. Sampson and Lauritsen 1990; Lauritsen *et al.* 1992). Are primarily violent and aggressive behaviours of importance? Or do we also find associations with crimes for profit and more general conduct problems? In several recent studies the importance of the presence of guns and other weapons in adolescent groups has been emphasized. In many communities a large proportion of the adolescents carries weapons, and there is much to indicate that their views are affected by the presence of firearms and other weapons (for a review, see Fagan and Wilkinson 1997). However, little is known as to the importance of carrying a weapon as a risk factor for victimization. Further, numerous studies indicate that there is a link between alcohol and violent victimization. However, recent alcohol research indicates that many of the acute consequences of alcohol are associated primarily with episodes of heavy drinking (see e.g. Bondy 1996). But in victimization research, crude measures of the frequency of alcohol consumption (e.g. Lauritsen *et al.* 1992; Windle 1994) or measures of total volume consumed (Sampson and Lauritsen 1990) have usually been utilized. Thus, one could hypothesize that the impact of alcohol has been underestimated. Further, the typical pattern of use of psychoactive substances in most western countries has become poly-drug use, where high levels of alcohol consumption are combined with use of illegal substances such as cannabis, amphetamines and MDMA (ecstasy) (Pedersen and Skrondal 1999). The relative importance of alcohol compared with illegal substances has not yet been investigated.

Earlier research has reported that males are more often victimized than females. However, females seem to be more often victimized in private settings and families (Pernanen 1991; Gelles 1987), and there is much to indicate that lifestyle and own violence play different roles in the aetiology of victimization in males and females (Pape and Pedersen 1999). However, the findings are not very conclusive. One could also surmise that gender-related age effects may be important, in that adolescent girls who have not yet entered into stable relationships with the opposite sex may experience different risk factors from their older female peers. By and large, possible gender differences should be investigated in more detail in the victimization research.

As late as in the early 1970s, virtually nobody with a background from outside Europe was living in Norway. Then the number of work migrants and political refugees coming to Norway increased rapidly. Today almost one in five of the adolescents in Oslo have a third-world country background. In earlier studies, immigrant background has been reported to be associated with victimization. In the UK, Mayhew *et al.* (1989) reported that persons of Afro-Caribbean and Asian origin had much higher rates of violent victimization than white groups. In the US as well, there are large differences in victimization according to ethnic status, where personal violence and homicide are vastly more common among blacks (Kelley *et al.* 1997). Are such patterns also found in Norway? Do we find the same risk factors in the immigrant groups as in the rest of the adolescent population?

Aim of the Study

In the present study we will first present prevalence rates of violent victimization in Norwegian mid-adolescents. We will then investigate associations between victimization and sociodemographic characteristics. To study these factors, we will use both individual and community-level variables. Further, we will investigate the relationships to family factors, lifestyle, parental guardianship and finally to behaviours associated with alcohol, drugs and delinquency. We will specially emphasize possible aetiological differences between boys and girls. We will also investigate whether immigrant background is of importance. Finally, the main aim of the study is to test out more systematically the theoretical frames of reference which have been regarded as most fruitful in previous research.

Methods

Primary data

The survey data are from the research project *Young in Oslo,* where adolescents from Oslo took part in a large survey study in 1996. Consent was obtained from education authorities and the school boards in Oslo. All students gave their consent based on both an oral and written description of the project formulated according to the standards prescribed by the Norwegian Data Inspectorate. All parents were informed about the research project. To avoid students influencing each other's responses, all eligible students at each school completed questionnaires at the same time. The adolescents were recruited from grades 8, 9 and 10 in the school system, and all the schools in Oslo were included. Then nearly full cohorts of adolescents in the eighth and ninth years of school—which are compulsory—were included in the study. Approximately 98.5 per cent of the total population of adolescents are enrolled in the school system in Oslo. Approximately 90 per cent of the cohort are found in the school system in the tenth year. The response rate was 94.3 per cent. Some of those who are in a high-risk zone for violent victimization clearly do not appear, but even so, the high response rate makes the material well suited for investigating victimization. The sample consisted of 10,812 adolescents, 50.8 per cent boys and 49.2 per cent girls. The mean age was 15.4 years (SD

0.94). A more detailed description of the sample, drop-outs, and methods of sampling is reported elsewhere.

Oslo is divided into 25 city districts, and we asked the respondents in which of these city districts they lived. To increase the reliability of the answers, a map of Oslo with all city districts drawn in was used. Further, we asked the respondents to indicate their four-digit postcode, which corresponds with the city districts. We asked about their father's and mother's education and work. This information was combined with a measure of parental social class, which was classified according to the occupation standard ISCO 88 (ILO 1990). A fivefold classification was used, with a range from 'upper managerial' (9.1 per cent) to 'working class' (26.8 per cent). Further, 7.4 per cent of the respondents had fathers who were unemployed or living on social welfare, while the corresponding figure for the mothers was 6.7 per cent. In accordance with Statistics Norway's definition, adolescents with both parents born in another country were regarded as immigrants. Based on this definition, there were 16.7 per cent who had an immigrant background from third-world countries. The countries with the largest representation of immigrants were Pakistan, Morocco, Turkey and Vietnam.

There was a high prevalence of parental divorce, and 32.6 per cent of the adolescents did not live with both parents. Based on Olweus (1991), a measure of parental control and monitoring was included (scale 0–16, mean 3.5, SD 3.1). Perceived parental support was measured using questions on whether the respondents felt they could talk to their parents about personal problems (scale 0–8, mean 3.9, SD 1.9). Exposure to alcohol in the home was measured using three questions pertaining to whether the adolescent got alcohol from the parents in various situations ('particular occasions', 'Sunday dinner', and 'to take with you to a party'). The answers were combined into an index with values 0–3 (mean 0.7, SD 0.9).

In order to measure *frequency* of alcohol consumption (ACF), the respondents were asked: 'Do you ever drink any kind of alcohol?' Possible answers were 'Do not drink alcohol' to 'Drink more than twice a week'(scale 0–7, mean 1.82 SD 1.89). However, earlier research has shown that drinking episodes with 5+ drinks is more strongly related to alcohol-related harm than measures of alcohol consumption frequency (Single and Wortley 1993; Room *et al.* 1995). Therefore, we asked how many times during the last four weeks the respondent had drunk 5+ units of alcohol. The answers were transformed to an ordinal scale with values from 0 (never) to 6 (8+ times) (scale mean 0.94, SD 1.65). We also asked how many times the respondent had been intoxicated during the last year, with values from 0 (never) to 7 (101+) (scale mean 1.12, SD 1.92). Finally, in order to measure *alcohol problems*, four items from Rutger's Alcohol Problem Index (RAPI) were used (White and Labouvie 1989). The instrument measures various consequences of alcohol consumption, related to depression, black-out reactions, dependence and social problems, and captures the most important aspects of alcohol abuse and dependence, as conceptualized in DSM-IV (APA 1994). None of the items was related to violence, and the index had a range from 0–8 (mean 1.06, SD 1.89) and a Cronbach's alpha of 0.72. The respondents were also asked whether they had used cannabis, ecstasy or amphetamines during the last 12 months. 10 per cent had used only cannabis, while 4 per cent had used ecstasy and/or amphetamines, a majority of whom had also used cannabis.

Conduct problems (CP) were measured for the four dimensions of acts forming the basis of the diagnosis *conduct disorder* according to the DSM-IV (APA 1994). The questions were taken from Windle (1990) and Olweus (1991). Answers for each dimension

were combined to indices. *Aggression* was measured using four questions about bullying, fighting with a weapon, and threatening or committing violence (mean 0.40, SD 0.77). *Destruction of property* included two questions about 'tagging', and vandalism (mean 0.18, SD 0.48). *Deceitfulness or theft* included four questions about pilfering from a shop, theft of more than NOK 1,000 (about £100), burglary, and theft of a car or a motorbike (mean 0.40, SD 0.74). Finally *violation of rules* was measured using four questions about not paying on buses and at the cinema, truancy, staying out at night without parental knowledge and permission, and driving a car or motorbike without a licence (mean 1.28, SD 1.12). We also asked whether the respondents carried a weapon (e.g. a knife) with answer categories on a 5-point scale from 'never' to 'always'. 5.2 per cent carried a weapon 'always' or 'almost always' (8.1 per cent of the boys and 2.1 per cent of the girls). To measure attachment to a possible delinquent milieu of peers, a number of questions was posed about use of alcohol, drugs and contact with the police, for the two best friends of the respondent (values 0–6, mean 1.03, SD 1.43). Due to the possibility of collinearity in the multivariate analyses, we estimated the correlations between the various indicators of risk behaviours, and none were above r 0.49.

We also wanted to get a picture of whether the adolescents frequented the central parts of Oslo where there is assumed to be a high risk of violence and victimization. So we asked them: 'Have you been in the centre of Oslo during the last week (the last 7 days)? (Do not include journeys to/from school/work)'. There were reply options for all weekdays and also a column for 'daytime', 'evening' and 'at night (after midnight)' for each day. The answers were combined to give three indices all with values from 0–7 for 'days in town', 'evenings in town' and 'nights in town'.

Finally, we posed a number of questions about victimization. We know that adolescents usually include less serious experiences than older age groups in such reports (Garofalo *et al.* 1987). So we first posed a series of questions relating to less serious victimization experiences, to exclude these from our dependent variable. We asked: 'During the last 12 months, have you been a victim of any of the acts or threats mentioned below?' This introduction was followed by four statements, related to (i) threats of violence, to (ii) being hurt without getting bruises, to (iii) being hurt badly enough to have received wounds, but ones that did not need medical treatment. And finally, we asked (iv) whether the respondent had been victimized so badly as to need medical treatment. Those who answered the last question in the affirmative were, according to our definition, regarded as victims of violence.

Secondary data

In addition to the survey, we collected and analysed community-level data. This kind of information was used because prior research has emphasized the importance of demographic characteristics for victimization risk. It is, however, impossible to obtain reliable and valid information as regards basic sociodemographic context-indicators from adolescents' self-reports. The municipality of Oslo has developed a sensitive system for monitoring the living conditions in all of the city's 25 districts. This is partly due to the fact that the city's budget is based on transfer of money using such indicators. Five such indicators were of interest to us: (i) rate of inhabitants in the ward with low education—'Low education' (age group 40–59 years); (ii) rate of persons with low income—'Low income' (same age group); (iii) rate of children aged 0–6 years living in single-parent

families—'Single parent children'; (iv) death rate—'Death rate' (age group 50–74 years); (v) rate of persons moving out of the ward during a year—'Residential mobility'. All rates were presented as relative to the rates for the whole town. A factor analysis showed that all indicators except residential mobility had high loadings on the same factor. Thus a ward welfare sum index was constructed, based on the four indicators 'low education', 'low income', 'single parent families' and 'death rate' (alpha 0.90). In addition the residential mobility rate was used in our analyses.

Analysis

The strategy for analysis was first to present the bivariate associations between the relevant independent variables and the outcome variable—victimization. This association was assessed by means of crude odds ratios (cOR) with 95 per cent confidence intervals (CI). Based on these associations, larger multivariate logistic regression models were then constructed. We chose, however, to proceed rather painstakingly: first, we analysed the different *domains* of variables separately—i.e. sociodemography, variables related to family risk and guardianship, general lifestyle variables and variables related to risk behaviours. This enabled us to inspect which of the factors within each domain were most important. Then we built complete models, following the model-building procedure outlined by Hosmer and Lemeshow (1989). We selected candidate variables for these models from the bivariate and domain analyses. The model verification process then proceeded by deleting variables, refitting and verifying until all important variables were included in the final models. Possible gender differences in aetiology of victimization are of vital interest in this paper. We therefore compared the estimators of boys and girls throughout all steps of our analyses.[1] Adjusted odds ratios (aOR) with 95 per cent confidence intervals were used as measures of association in all multivariate analyses. The reported estimates in the final models pertain to trimmed models where the confidence intervals do not include the nil value of 1. As a complement to the measures of association, we estimated *attributable risks* which are central in the investigation of prevention strategies (see Kleinbaum *et al.* 1982). This is because an attributable risk gauges the potential impact of removing a risk factor on the prevalence of victimization. Here, we should note that removing a low-prevalent risk factor (e.g. use of illegal drugs other than cannabis) will have only a minor impact on the prevalence of victimization, even though the association between the variables may be high. Conversely, removing a risk factor which is moderately associated with the outcome may be effective if that risk factor has a high prevalence.

Results

6.1 per cent of the adolescents had been victimized according to the definition given above, 8.8 per cent of the boys and. 3.4 per cent of the girls (χ^2 (DF=1) = 129.3, p<.0001). In Table 1, we present the relationship between victimization and a number of individual

[1] To estimate whether the differences between the estimators were significant, we used the formula: $Z = \frac{b_1 - b_2}{\sqrt{se_1^2 + se_2^2}}$ (Cohen and Cohen 1983).

TABLE 1 *Crude odds ratios (cOR) for individual and contextual level sociodemographic variables**

Variables	Total sample cOR 95% CI	Total sample aOR 95% CI	Boys aOR 95% CI	Girls aOR 95% CI	Z-test
A: Individual level sociodemographic variables					
Gender (boy 0, girl 1)		0.37 (0.31–0.44)			
Working class background (0, 1)		1.34 (1.12–1.60)	1.25 (1.01–1.55)	1.59 (1.15–2.19)	NS
Parents unemployed (0–2)		1.42 (1.20–1.69)	1.43 (1.17–1.74)	1.39 (1.00–1.94)	NS
Immigrant background (0, 1)		1.73 (1.42–2.10)	1.75 (1.38–2.20)	1.68 (1.17–2.42)	NS
B: Individual and contextual level sociodemographic variables					
Block improvement of fit, chi-square		22.2 (DF 3) p < .0001	20.2 (DF 3) p = .0002	5.5 (DF 3) p = .1398	
Gender (boy 0, girl 1)	0.37 (0.31–0.44)	0.37 (0.31–0.44)			
Working class background (0, 1)	1.42 (1.19–1.69)	1.22 (1.02–1.47)	1.12 (0.90–1.40)	1.51 (1.08–2.11)	NS
Parents unemployed (0–2)	1.67 (142–1.95)	1.36 (1.14–1.61)	1.37 (1.12–1.67)	1.32 (0.94–1.84)	NS
Immigrant background (0, 1)	2.01 (1.68–2.41)	1.52 (1.24–1.86)	1.53 (1.20–1.95)	1.49 (1.02–2.19)	NS
Area mobility (0.7–1.6)	1.91 (1.42–2.56)	1.22 (0.83–1.80)	1.09 (0.69–1.74)	1.61 (0.78–3.33)	NS
Area welfare index (2.0–6.5)	1.28 (1.20–1.36)	1.99 (1.28–3.09)	2.39 (1.41–4.04)	1.25 (0.56–2.81)	***
Area welfare index, square	1.02 (1.02–1.04)	0.94 (0.89–0.99)	0.92 (0.86–0.98)	0.98 (0.89–1.08)	NS

* Adjusted odds ratios (aOR, implying that the variables are controlled for each other) for A: Individual level sociodemographic variables, and B: Individual and contextual level sociodemographic variables. Analyses for total sample and separately for boys and girls. Block improvement for additional variables in analyses B reported, and z-test for differences in estimates between boys and girls.
*** p < .001

and contextual level sociodemographic variables. In the first column, crude odds ratios (cORs) for all variables are presented, and one can see that all variables were significantly associated with violent victimization. Thus, all individual-level variables had impact: gender (boy), working-class background, parents outside the workforce, third-world immigrant background. The two contextual level indicators—residential mobility and the welfare index—also had an impact. Further, there was an impact from the area index squared, indicating a non-linear relationship between low welfare and victimization risk. In the second column, the first block, we report an analysis where all individual-level sociodemographic variables were entered simultaneously, controlled for each other. Even if the associations were somewhat reduced, one can see that all variables still had a significant impact. In the second block, contextual level variables were also included, and one should note that the area welfare index had a highly significant impact, but that the area welfare index squared still had an impact. Closer inspection of the estimates revealed that this was due to the fact that the effect of the welfare index was gradually weakened and exhausted at higher values. Thus, there was an association between low welfare and victimization risk, but beyond a certain threshold there was no increased risk. Residential mobility had no effect. Further, one should note that, when the contextual level variables were introduced, the variables related to working-class background, parents unemployed and immigrant background lost some of their impact, but all of them still remained significant. In columns 3 and 4 separate analyses are reported for the two genders, and in the last column, z-tests for possible significant differences in the estimates are reported. Two features are noteworthy: first, as regards individual level variables, there were only small and non-significant differences in the estimates between the two genders. Secondly, there was a clearly significant improvement of fit in the boys, when the contextual level variables were included, but there was no such improvement in the girls. The differences in effects from the area welfare index still did not reach significance between the two genders (boys B 0.87, SE 0.23, girls B 0.23, SE 0.41).

The same strategy was then utilized with regard to family guardianship and family risk factors. The results are presented in Table 2. In the first column, we report the cORs for each variable in the family domain. All variables had significant impact. In the second column, a multivariate analysis with the same variables is reported. Parental monitoring, parental support and parental alcohol exposure remained significant, while not living with both parents no longer had a significant impact. In columns 3 and 4, separate analyses for the two genders are reported. All variables remained significant in the boys, while only parental monitoring remained significant in the girls. However, none of the estimators for boys and girls was significantly different from another. The same procedure was then utilized for general lifestyle and risk behaviour factors. The results are presented in Table 3. The first column shows that the cORs for all included variables were again significant. Thus, variables related to lifestyle (unorganized leisure, evenings and nights in town), all variables related to alcohol and substance use, all dimensions of conduct problems, and also to carry a weapon and to have delinquent friends, were associated with victimization risk. In column 2, all lifestyle and risk behaviour variables were entered simultaneously. Now, two lifestyle indicators remained significant—unorganized leisure and nights in town. A seemingly contra-intuitive finding was that alcohol consumption frequency (ACF) was now negatively associated with victimization risk, whereas alcohol frequency squared also had a significant effect. There were no

TABLE 2 *Crude odds ratios (cOR) for family guardianship and family risk variables. Adjusted odds ratios (aOR) for the same variables**

Variables	Total sample cOR 95% CI	Total sample aOR 95% CI	Boys aOR 95% CI	Girls aOR 95% CI	Z-test
Not living with both parents (0, 1)	1.27 (1.07–1.49)	1.13 (0.95–1.33)	1.22 (1.00–1.49)	1.07 (0.77–1.47)	NS
Parental monitoring (0–	1.08 (1.06–1.11)	1.06 (1.03–1.09)	1.03 (1.00–1.07)	1.07 (1.02–1.12)	NS
Parental support	1.11 (1.07–1.16)	1.07 (1.02–1.12)	1.09 (1.03–1.15)	1.06 (0.96–1.15)	NS
Parental alcohol exposure	1.17 (1.11–1.25)	1.14 (1.07–1.21)	1.18 (1.10–1.26)	1.06 (0.93–1.20)	NS

* Analyses for total sample and separately for boys and girls, and z-test for differences in estimates between boys and girls.

TABLE 3 *Crude odds ratios (cOR) for lifestyle and risk behaviour variables for violent victimization**

Variables	Total sample cOR 95% CI	Total sample aOR 95% CI	Boys aOR 95% CI	Girls aOR 95% CI	Z-test
Unorganized leisure	1.06 (10.5–1.07)	1.02 (1.01–1.03)	1.02 (1.01–1.03)	1.02 (0.99–1.05)	NS
Evenings in town (0–7)	1.26 (1.20–1.31)	1.04 (0.99–1.11)	1.06 (0.99–1.13)	1.07 (0.95–1.20)	NS
Nights in town (0–7)	1.49 (1.40–1.59)	1.10 (1.01–1.20)	1.07 (0.97–1.18)	1.11 (0.90–1.38)	NS
Alc. cons. freq. (0–7)	1.11 (1.07–1.16)	0.74 (0.61–0.90)	0.88 (0.70–1.11)	0.59 (0.39–0.88)	NS
Alc. cons. freq. sq.	1.02 (1.01–1.02)	1.02 (1.00–1.05)	1.01 (0.98–1.04)	1.04 (0.98–1.10)	NS
5+ units alc. (0–6)	1.07 (1.05–1.10)	0.99 (0.96–1.02)	1.01 (0.97–1.04)	0.95 (0.88–1.02)	NS
Intox. freq. (0–7)	1.10 (1.06–1.15)	0.95 (0.89–1.03)	0.91 (0.85–1.00)	1.13 (0.99–1.29)	NS
Alc. probl. (0–8)	1.25 (1.21–1.28)	1.17 (0.89–1.03)	1.19 (1.14–1.24)	1.21 (1.13–1.29)	NS
Cannabis (0, 1)	1.39 (1.10–1.77)	1.02 (1.10–1.77)	1.12 (0.80–1.56)	0.81 (0.44–1.49)	NS
Amph. + ecst. (0, 1)	5.94 (4.19–8.40)	1.26 (0.79–1.99)	1.25 (0.75–2.07)	1.51 (0.49–4.69)	NS
Aggression (0–4)	1.79 (1.66–1.92)	1.23 (1.09–1.39)	1.20 (1.05–1.36)	1.22 (0.94–4.69)	NS
Destruction (0–2)	2.17 (1.93–2.44)	1.14 (0.95–1.37)	1.03 (0.84–1.25)	1.27 (0.81–1.98)	NS
Deceitfulness (0–4)	1.67 (1.55–1.80)	1.05 (0.93–1.20)	1.03 (0.90–1.19)	1.04 (0.77–1.41)	NS
Violation of rules (0–4)	1.29 (1.20–1.38)	0.92 (0.84–1.02)	0.96 (0.86–1.07)	0.91 (0.75–1.09)	NS
Carrying of weapon (0)	1.73 (1.62–1.84)	1.35 (1.25–1.48)	1.23 (1.12–1.36)	1.39 (1.16–1.67)	NS
Delinquent friends	1.30 (1.24–1.36)	1.05 (0.98–1.12)	1.03 (0.95–1.11)	0.96 (0.82–1.12)	

* Adjusted odds ratios (aOR) for the same variables. Total sample, boys and girls separately, and z-test for difference in estimates for boys and girls.

significant associations with the measures of 5+ drinks or alcohol intoxication, whereas there still was a strong effect from alcohol problems (RAPI scores). In the conduct domain, only aggression still had an impact, but carrying weapons also had a significant effect. In columns 3 and 4, separate analyses for the two genders are again reported. None of the estimators for the two genders was significantly different from the others in magnitude.

Why was ACF in the bivariate analyses positively associated with victimization, whereas there was a negative association in the multivariate analyses? Note first that immigrants from the third world on the one hand had clearly increased victimization rates (cOR 2.01), but on the other hand they had much lower ACF than the rest of the sample. For example, 77.8 per cent of the adolescents from the third world were alcohol abstainers, as opposed to 27.2 per cent in the rest of the sample (χ^2 1640.2 (DF 7) p<.0001). To investigate this issue in more detail, we therefore conducted a new series of logistic regressions, as reported in Table 4. First, we entered ACF alone as a categorical variable, as reported in the first column. Note the curvilinear pattern: the abstainers (category 1) had higher victimization risk than the low-frequent drinkers (categories 2 and 3), but the high-frequent consumers (categories 7 and 8) also had clearly increased risk. We then included immigrant background in the analysis, as shown in column 2. Note that the low-frequent drinkers no longer had reduced risk, but that the associations for the higher levels of ACF increased in magnitude. Finally, we introduced alcohol problems (RAPI scores), and now higher levels of ACF did not show positive associations to victimization, either. Probably we are witnessing two different mechanisms here: first, immigrant background is an important confounder, as on the one hand these adolescents have extremely low ACF, but on the other hand have high victimization rates. Secondly, we can observe that alcohol has an influence, but that it is related to alcohol problems, and not to ACF. Thus, control for both immigrant status and alcohol problems eliminated all effects from ACF.

Finally, we estimated complete trimmed models, for the whole sample and for each gender separately. Variables were selected through the procedure described above, and variables that were significant either in the total sample or for one gender were included.

TABLE 4 *Adjusted odds ratios (aORs) and 95% confidence intervals for alcohol consumption frequency for violent victimization**

Variables	Model 1	Model 2	Model 3
Alcohol consumption frequency			
1. Do not drink alcohol	1.00	1.00	1.00
2. 1–4 times a year	0.78 (0.62– 1.00)	1.06 (0.82– 1.36)	0.97 (0.76–1.27)
3. 5–10 times a year	0.68 (0.49– 0.93)	0.95 (0.68– 1.32)	0.74 (0.52–1.03)
4. Once a month	0.96 (0.70– 1.31)	1.34 (0.97– 1.87)	0.98 (0.70–1.38)
5. 2–3 times a month	1.09 (0.83– 1.42)	1.56 (1.17– 2.08)	0.99 (0.73–1.34)
6. Once a week	1.29 (0.99– 1.68)	1.85 (1.40– 2.45)	0.95 (0.71–1.30)
7. 2–4 times a week	2.69 (1.89– 3.83)	3.70 (2.56– 5.34)	1.13 (0.73–1.75)
8. Every day	9.07 (3.97–16.45)	10.0 (4.85–20.65)	1.78 (0.77–4.09)
Immigrant background		2.42 (1.96–2.98)	2.14 (1.73–2.64)
Alcohol problems			1.25 (1.21–1.29)

*aORs are estimated bivariately in Model 1, controlling for immigrant background in Model 2, and controlling for immigrant background and alcohol problems in Model 3.

The results are presented in Table 5. Note that in the total sample, unemployed parents and immigrant background had an effect, as well as the area welfare index and the area welfare index squared. Among the family domain variables, only parental alcohol exposure still had an effect. Among general lifestyle indicators, unorganized leisure activities and number of nights in town had an effect. Finally, three indicators of risk behaviours had an impact: alcohol problems, aggression and carrying weapons. Separate analyses for each gender revealed no significant differences in estimators. We also estimated attributable risks (ARs) for the variables in the equation. Most important were the welfare index, which had an AR of 0.36, immigrant background 0.12, parents unemployed 0.04, alcohol problems 0.36, aggression 0.15 and carrying a weapon 0.24. These estimates indicate the potential preventive impact from eliminating a risk factor, and imply that we could, for example, expect a 36 per cent reduction in victimization in those affected by alcohol problems, if these problems were eliminated. Of course these estimates should not be taken too literally, as many of the same risk factors are to be found in the aetiology of victimization and alcohol problems. Nevertheless, the ARs are good indicators of the magnitude of the various risk factors.

Are the same factors associated with risk for adolescents with an immigrant background as for those with a Norwegian background? Separate analyses with the variables included in Table 5 were conducted for both these groups of adolescents. The results showed that none of the variables was significantly different from others, with one exception—the welfare area index, which had a significantly greater impact on those of Norwegian background (B 0.93, SE 0.29 vs. B –0.60, SE 0.55, Z=2.41).

One could hypothesize that the associations between victimization and own risk behaviours were based on a small segment of conduct-disordered adolescents, who had an extremely increased risk. To investigate this hypothesis, we combined all four dimensions of conduct problems to a general conduct problem index (CPI, values 0–14). We then excluded the 3 per cent with the highest involvement in the CPI (9+), and re-estimated the model in Table 5. The analyses revealed no significant differences in the estimates. The analyses were again re-estimated when we excluded the 5 per cent (8+) and the 8 per cent (7+) with most CP. The results were still basically the same—the only

TABLE 5 *Adjusted odds ratios (aOR) for full logistic regression model**

Variables	Total sample aOR 95% CI	Boys aOR 95% CI	Girls aOR 95% CI	Z-test
Gender	0.46 (0.39–0.57)			
Working class (0,1)	1.13 (0.94–1.37)	1.02 (0.81–1.29)	1.45 (1.03–2.03)	NS
Parents unemployed (0,2)	1.27 (1.06–1.52)	1.26 (1.02–1.56)	1.29 (0.92–1.81)	NS
Immigrant background (0,1)	1.83 (1.48–2.27)	1.77 (1.37–2.28)	2.01 (1.35–3.00)	NS
Area welfare index	1.76 (1.13–2.74)	2.29 (1.34–3.90)	0.96 (0.43–2.11)	NS
Area welfare index square	0.95 (0.91–1.00)	0.93 (0.87–0.98)	1.02 (0.93–1.11)	NS
Alcohol exposure	1.07 (1.00–1.14)	1.08 (1.00–1.17)	1.03 (0.90–1.18)	NS
Unorganised leisure	1.02 (1.01–1.19)	1.02 (1.01–1.03)	1.01 (0.99–1.04)	NS
Nights in town	1.09 (1.01–1.19)	1.08 (0.99–1.19)	1.14 (0.94–1.39)	NS
Alcohol problems	1.16 (1.06–1.28)	1.17 (1.12–1.21)	1.14 (1.08–1.21)	NS
Aggression	1.17 (1.06–1.28)	1.16 (1.04–1.28)	1.21 (0.97–1.51)	NS
Carrying weapon	1.27 (1.17–1.38)	1.24 (1.13–1.36)	1.37 (1.15–1.63)	NS

*Total sample, boys and girls separately, and z-test for difference in estimates for boys and girls.

variable which no longer remained significant (at 7+ CPI), was parental alcohol exposure. So our results seem to be valid for the general population of adolescents, not only for a sub-sample of conduct disordered youth.

Discussion

Main findings and study limitations

The present study revealed that 6 per cent of our normal population sample of adolescents had been victims of serious violence during the last year. More than twice as many boys were exposed to violence as girls. Adolescents from the working class or with unemployed parents were also at increased risk. A special feature of the present study was the inclusion of contextual level variables, measuring aspects of welfare (education, income, single parent families, death rates) in the residence districts of the adolescents, and these variables turned out to have an even larger impact than individual-level sociodemographic variables. Further, adolescents with an immigrant background from third-world countries in Asia and Africa were also at highly increased risk. We also investigated the relationship to lifestyle, and found that general lifestyle factors such as staying out at night and having unorganized leisure put adolescents at risk. However, so-called risk behaviours were more important, and among these variables, alcohol problems, own aggression and carrying a weapon had the largest impact. Thus, adolescents were at risk, both due to socio-economic aspects of their life situation and due to their own behaviour. We also investigated whether the aetiology of victimization differed between the two genders. There were some indications that contextual level welfare variables were more important for boys than girls, but the differences did not reach significance in the full models. Such risk factors were, however, significantly more important in adolescents with a Norwegian background than in those with an immigrant background. A special analysis revealed that the associations between victimization and risk behaviours were just as robust when we excluded adolescents with a high level of conduct problems.

Theories about *violent subcultures* got little support from our data. First, delinquent peers had little impact. Secondly, when adolescents with high levels of conduct problems were excluded from the sample, the findings were not altered. Theories about *lifestyles* got more support, though the importance of *parental guardianship* was of a smaller magnitude. However, among the lifestyle dimensions, those related to alcohol problems and delinquency had the largest impact. A new feature of the present study was the multifaceted and accurate measurement of alcohol consumption, alcohol problems and delinquent behaviours. Based on our evidence, we suggest that the importance of alcohol has probably been underemphasized in earlier research. Measures of *alcohol problems* have rarely been included, and alcohol problems were the most important substance variable in our study. In the delinquency domain, only aggression had an impact, but one should also note the importance of carrying a weapon. However, even sociodemographic factors had a large impact when own behaviour was controlled for. Such findings have been reported earlier by numerous American studies. Norway is, however, usually regarded as a welfare state with few social problems. So one should note the importance of these factors, even in the Norwegian context.

The present study has several strengths: we had at our disposal a surveyed sample of almost all adolescents in three age cohorts in Oslo, the only metropolitan city in Norway. Well-validated instruments were used, and in addition we used community-level variables, measuring the most important welfare indicators. There are, however, also limitations: first, even if we had an impressive response rate, we must assume that there were more victims of violence in the non-response group—approximately 5 per cent—and among those who are not found in the school system. Secondly, even if self-reports of conduct problems, violence and use of psychoactive substances generally have acceptable validity (see e.g. Rutter *et al.* 1998), ideally we should have had independent medical reports of victimization experiences at our disposal. Earlier studies indicate that adolescents generally have high victimization rates, but that they often include less serious victimization experiences than older age groups in their reports (Garofalo *et al.* 1987). This limitation was probably partly overcome by our way of posing the victimization questions. Still, there is reason to assume that our dependent variable includes somewhat heterogeneous experiences. A third limitation pertains to our classification of immigrant youth. Due to the small number of adolescents in many of the ethnic groups, we used the broad classification 'third-world' immigrants. Such a classification is, however, obviously rather arbitrary. In future research, one should investigate victimization within this broad category in more detail. Finally, one should note that the data set was cross-sectional. By means of longitudinal data it would of course have been easier to draw conclusions regarding causal development and aetiology.

Sociodemographic and community factors

Why was working-class background associated with increased victimization risk? In Oslo, traditional industry has largely been shut down, and working-class jobs have rapidly disappeared during the last decades. Thus, adolescents from the working class have poor professional role models in their parents, and often witness an insecure future job situation. This may form some of the background for this association. Several studies from the so-called Birmingham school in the 1970s investigated British working-class youth and their violent behaviour in a similar structural situation (see Willis 1977). The frame of interpretation for these contributions was that working-class violence was founded in a culture-specific class ethos, with emphasis on physical toughness and masculinity. In a situation where there was restructuring of industry, the traditional way of life in the working class was threatened. Their ways and manners were, however, maintained, but floating freely in a diffuse social structure, without the mechanisms for discipline and correction that originally had been there. Robins and Cohen (1978) showed that violence within such a loose social structure could become more brutal. For example, the traditional pub fights had been regulated by many norms. Such norms were disintegrating, they argued. A hypothesis would be that such a development has also become evident in working-class adolescents in Norway. Evidence for such a line of reasoning has recently been presented by a Norwegian sociologist, studying violent right-wing activists, the so-called skinheads (Fangen 1998a,b). She argued that the recruiting base for the group was largely working class and that their aesthetic was almost a caricature of traditional working-class masculinity and toughness.

Another possibility, however, is that working-class background is associated with an insecure family economy. Obviously this may be the basis for the association between

victimization and having unemployed parents, or parents on social welfare. Early criminological theorizing postulated that antisocial behaviour resulted from the 'strain' caused by the gap between social goals and the means available for their achievement (Merton 1957). However, it gradually became clear that the association between social disadvantage and antisocial behaviour was not as strong or as consistent as assumed. Still, it remains clear that social disadvantage puts persons at risk for antisocial behaviour. During the last couple of decades, new evidence has also been presented about the mechanisms behind such associations. Based on a rural sample, Conger *et al.* (1992, 1994) showed that economic problems in the family had an effect on antisocial behaviour, but that the effect was indirect—and mediated by parental depression, marital conflict and parental hostility. Thus, the rather broad concept of 'economic pressure' was linked to the concept of 'family stress'. Basically similar findings were reported from a sample in an urban context (Capaldi and Patterson 1987).

Our study indicates that some of the same mechanisms may also be at work in our sample. Still, it is noteworthy that community-level welfare indicators played such an important role in the present study. Various community-level factors relate to one another and to violence in complex ways that are not yet fully understood. For many decades numerous studies have pointed to the importance of poverty (for a review see Short 1997). Recently Sampson and Lauritsen (1994) found, however, that measures of poverty and income inequality accounted for less variance in neighbourhood violent crime than did neighbourhood characteristics such as density of housing, residential mobility and family structure. Most striking among our own findings was, perhaps, the single-dimensional structure of four of our welfare indicators. There were, for example, extremely high correlations between rate of single-parent households, low education and low income (Pearson's r above 0.85). Further, we found that welfare level *was* important, but that victimization risk did not increase below a certain threshold of welfare. Thus, future research should first of all investigate how these social structures develop. Secondly, one should try to link such characteristics to possible conflict-generating processes at the community level. Sampson *et al.* (1997) suggested that the mediating mechanism seemed to be the development of lack of social cohesion and little willingness among the inhabitants to intervene in social conflicts. Informal social control was suggested to be a crucial concept in this context. It refers to the capacity of a group to regulate its members according to desired principles. A common goal in a community is the desire of the residents to live in safe and orderly environments that are free of crime, especially interpersonal violence. Residential instability was the key welfare-level variable in the Sampson study. On the other hand, residential instability seems to be of much less importance in our study. The conclusion so far be must that here we have a research area that should be investigated in much more detail, and in a European and Nordic context.

Gender

All victimization studies show that men are more often victims of violent victimization than women. Further, studies also show that men are much more violent. On the other hand, women are more exposed to family violence and violence between spouses (Gelles 1987; Pernanen 1991). Thus, gender is obviously an important factor as regards victimization. Still, there is a lack of studies investigating possible gender differences in aetiology. In a recent longitudinal study of young adults, Pape and Pedersen (1999)

found that the *stability* of victimization was much higher in females than in males. Females tended more often to remain in the position of victim. Further, the study revealed the somewhat surprising finding that whereas own aggression was a predictor of future victimization in males, the opposite was true in females. The solution to this puzzle seems to be that females were often victimized by a spouse or partner, whereas men were more often victimized by other men in public places. As the victimized woman often has a lasting relationship to the offender, the risk for continuous victimization is high. Earlier research also shows that, within the frame of such victimization relationships, deep paradoxical ties between offender and victim may develop. When the woman's own aggression 'protects' her against future victimization, this may indicate that she has not built up such ties to her offender, and that she has not developed a passive victim role (Morris 1987; Stanko and Hobdell 1993). Why did our results differ from those previously reported?

Probably the age group studied is the key to this question. Our sample was young. Few of our adolescent girls had permanent relationships with boyfriends who were potential offenders, probably none of them yet lived together. That is probably the reason why the predictors of victimization in our study were so similar in the two genders. Indeed, we know that some girls are sexually victimized in their early teens by their male peers (Pedersen and Aas 1995). However, these experiences are usually isolated cases. Further, such victimization experiences are often associated with the same risk factors as those described in the present paper—alcohol consumption, other risk behaviours and poor parental monitoring (Pedersen and Skrondal 1996). Thus, even if adolescent girls are victimized less frequently than boys, and even if the violence may take a somewhat different character, the risk factors are similar in the two genders.

Risk behaviours

Several earlier reports have shown that victims of violence are often involved in crime and delinquency, that they have a high alcohol consumption and that they also use other psychoactive substances. Alcohol consumption is, however, a complex phenomenon, and in most victimization studies the measures used have had rather low precision. However, previous alcohol research has shown that the acute consequences of alcohol stand in contrast to health problems in that they are more related to binges and heavy drinking than to the total volume of alcohol consumed. Such acute consequences include accidental injury, sexual assault, suicide, motor vehicle accidents and occupation-related problems (Knupfer 1984; Babor *et al.* 1987). In the present study, we utilized a number of alcohol-related measures, related to various drinking patterns, to capture the most important aspects of alcohol consumption. Our findings indicate that *alcohol problems* were clearly the most important predictor.

Alcohol is associated with violence in most societies, and alcohol obviously *has* effects on aggression beyond what might be expected as a placebo effect (Pernanen 1991). But at the same time there is a substantial component of *learned* behaviour in all alcohol reactions (Marlatt and Rohsenow 1980). Recent research models have tried to capture these complex relationships by means of pharmacological, social-psychological and culture-derived theory, where social learning theory and theories about social expectancies seem to be particularly promising. This is probably the key for interpretation of our findings as well: alcohol reactions are to a large degree *learned* reactions. The

intoxicated role is a learned role. That is why social and psychological consequences of consumption are more important than different measures of intake of alcohol. Note also that illegal substances in our study were of much less importance than alcohol.

When it comes to the importance of delinquent behaviours and violence, previous research has also usually utilized crude measures. However, there is a broad tradition aiming at investigating different patterns and dimensions in conduct problems. Due to this development, the diagnosis *conduct disorder* has continually undergone changes during the last decades (see Robins 1991).Our point of departure was the four conduct dimensions under the present official diagnosis: aggression, destruction of property, deceitfulness and violation of rules. In our bivariate analyses, all four dimensions were related to victimization risk. However, in the full models, only aggression remained significant. Thus, it is not delinquency in a broader sense which is of importance. Rather, the association is specific: your own aggression and your own violence constitute the main risk factor for victimization.

One should also note than 1 in 20 adolescents in Oslo reported that they usually carry a weapon. This was a surprise for us, and even if we do not have previous Norwegian data on this phenomenon, it seems reasonable to assume that there has been a marked increase in these numbers during the last few years. Those who carry weapons were most often boys, they belonged to delinquent peer groups, and they reported high levels on all substance-related variables. This group of adolescents was also in a risk zone for victimization. In this context it is interesting that the US is probably the most violent country in the western world, and that the extreme volume of weapons is regarded as an important factor behind the high violence and homicide rates (Zimring and Hawkins 1997). It seems reasonable to suggest that the presence of weapons in adolescents' immediate social contexts objectifies and symbolizes their perceptions of risk and danger. The result may be a developmental 'ecology of violence'. Beliefs about weapons and the dangers of everyday life may be internalized in childhood and may shape the cognitive frameworks for interpreting events and actions later on (Fagan and Wilkinson 1997). In the European and Nordic context, this phenomenon also obviously deserves much more attention.

Immigrant background

We found that adolescents with a background from third-world countries had increased rates of violent victimization. Studies from other countries have also reported similar patterns. Note, however, that several other studies report that ethnicity effects are diminished or disappear altogether, when social class and welfare indicators are controlled for (see Short 1997: 51). In our study, the effect of ethnicity remained, even when these factors were controlled for. There were, however, several noteworthy findings related to this issue. In Oslo, the immigrant population is concentrated in areas of the city with poor living conditions. All the same, our findings indicated that context-level welfare indicators were significantly *less* important for victimization in immigrants than in the rest of the sample. Thus, even if immigrant groups often live in areas with poor welfare, they are not as vulnerable to these community characteristics as other groups. A hypothesis would be that family or ethnic group factors—which were not measured in our study—compensate for such risk factors. One should also note that adolescents with this background had much lower alcohol consumption than other

adolescents. We made the puzzling finding that there seemed to be a j-formed curve between alcohol consumption frequency (ACF) and victimization. The solution of the puzzle was related to the alcohol consumption patterns in immigrant adolescents: these youths had a large proportion of abstainers, but at the same time they were at increased risk for victimization. Thus, when controlling for immigrant status, this j-shaped pattern disappeared. All the same, ethnic background was associated with increased risk, and when all other risk factors were controlled for, except for community-level welfare indicators. Basically the same risk factors seemed to be effective in immigrant youth as in the rest of the sample. Thus, immigrant youth seem to have particular risk factors that we have not captured in this study, which put them at increased risk. Wilson (1987: 58–60) suggested that poor blacks in the US live in 'ecological niches' which are disadvantaged in ways that are not easy to measure. Important aspects of their situation seem to be job quality, lack of exposure to conventional role models, and social isolation from networks that might link them to jobs and opportunities in a mainstream society. Further research should investigate in more detail the possible mechanisms behind the association between victimization and immigrant status. One hypothesis could be that we are facing racist motivated violence. Another possibility is that violence is concentrated within violent and ethnically homogenous groups.

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